

Description of emission	Necessary bandwidth		Designation of emission
	Formula	Sample calculation	
Quadrature Amplitude Modulation (QAM).	$B_n = 2R/\log_2 S$	64 QAM used to send 135 Mbps has the same necessary bandwidth as 64-PSK used to send 135 Mbps; $R = 135 \times 10^6$ bps; $S = 64$; $B_n = 45$ MHz	45M0W
Minimum Shift Keying ...	2-ary: $B_n = R(1.18)$ 4-ary: $B_n = R(2.34)$	Digital modulation used to send 2 megabits per second using 2-ary minimum shift keying $R = 2.36 \times 10^6$ bps; $B_n = 2.36$ MHz	2M36G1D

[28 FR 12465, Nov. 22, 1963, as amended at 37 FR 8883, May 2, 1972; 37 FR 9996, May 18, 1972; 48 FR 16492, Apr. 18, 1983; 49 FR 48698, Dec. 14, 1984; 68 FR 68543, Dec. 9, 2003]

Subpart D—Call Signs and Other Forms of Identifying Radio Transmissions

AUTHORITY: Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082; 47 U.S.C. 154, 155, 303.

§ 2.301 Station identification requirement.

Each station using radio frequencies shall identify its transmissions according to the procedures prescribed by the rules governing the class of station to which it belongs with a view to the elimination of harmful interference and the general enforcement of applicable radio treaties, conventions, regulations, arrangements, and agreements in force, and the enforcement of the Communications Act of 1934, as amended, and the Commission's rules.

[34 FR 5104, Mar. 12, 1969]

§ 2.302 Call signs.

The table which follows indicates the composition and blocks of international call signs available for assignment when such call signs are required by the rules pertaining to particular classes of stations. When stations operating in two or more classes are authorized to the same licensee for the same location, the Commission may elect to assign a separate call sign to each station in a different class. (In addition to the U.S. call sign allocations listed below, call sign blocks AAA through AEZ and ALA through ALZ have been assigned to the Department of the Army; call sign block AFA through AKZ has been assigned to the Department of the Air Force; and call sign block NAA through NZZ has been assigned jointly to the Department of the Navy and the U.S. Coast Guard.

Class of station	Composition of call sign	Call sign blocks
Coast (Class I) except for coast telephone in Alaska.	3 letters	KAA through KZZ. WAA through WZZ.
Coast (Classes II and III) and maritime radio-determination.	3 letters, 3 digits	KAA200 through KZZ999. WAA200 through WZZ999.
Coast telephone in Alaska	3 letters, 2 digits. 3 letters, 3 digits (for stations assigned frequencies above 30 MHz).	KAA20 through KZZ99. WAA20 through WZZ99. WZZ200 through WZZ999.
Fixed	3 letters, 2 digits	KAA20 through KZZ99.
	3 letters, 3 digits (for stations assigned frequencies above 30 MHz).	WAA20 through WZZ99. WAA200 through WZZ999.
Marine receiver test	3 letters, 3 digits (plus general geographic location when required).	KAA200 through KZZ999. WAA200 through WZZ999.
Ship telegraph	4 letters ¹	KAAA through KZZZ. WAAA through WZZZ.
Ship telephone	2 letters, 4 digits, or 3 letters, 4 digits ¹	WA2000 through WZ9999, through WZZ9999.
Ship telegraph plus telephone	4 letters	KAAA through KZZZ. WAAA through WZZZ.
Ship radar	Same as ship telephone and/or telegraph call sign, or, if ship has no telephone or telegraph: 2 letters, 4 digits, or 3 letters, 4 digits.	WA2000 through WZ9999, through WZZ9999.